



SEMICELL CAL-DIODE

SKCD 18 C 120 I HD

 $I_F = 25 \text{ A}$ $V_{RRM} = 1200 \text{ V}$

Size: 4,2 mm X 4,2 mm

Package: wafer frame

Features

- 600V, 1200V and 1700V
- optimized for high current density
- easy paralleling due to a small forward voltage spread
- positive temperature coefficient
- very soft recovery behavior
- small switching losses
- high ruggedness
- compatible to thick wire bonding
- compatible to all standard solder processes

Typical Applications

- freewheeling diode for IGBT
- optimal at frequencies < 8 kHz

Absolute Maximum Ratings

Symbol	Conditions	Values	Units
V_{RRM}	$T_{vj} = 25^\circ\text{C}, I_R = 0,1 \text{ mA}$	1200	V
$I_{F(AV)}$	$T_h = 80^\circ\text{C}, T_{vjmax} = 150^\circ\text{C}$	20	A
I_{FSM}	$T_{vj} = 25^\circ\text{C}, 10 \text{ ms, half sine wave}$	270	A
	$T_{vjmax} = 150^\circ\text{C}, 10 \text{ ms, half sine wave}$	200	A
T_{vjmax}		+ 150	°C

Electrical Characteristics

Symbol	Conditions	min.	typ.	max.	Units
I^2t	$T_{vjmax}, 10 \text{ ms, half sine wave}$		200		A^2s
I_R	$T_{vj} = 25^\circ\text{C}, V_{RRM}$			0,1	mA
	$T_{vj} = 125^\circ\text{C}, V_{RRM}$			2	mA
V_F	$T_{vj} = 25^\circ\text{C}, I_F = 20 \text{ A}$		1,5	1,77	V
	$T_{vj} = 125^\circ\text{C}, I_F = 20 \text{ A}$		1,5	1,77	V
$V_{(TO)}$	$T_{vj} = 125^\circ\text{C}$		0,92		V
r_T	$T_{vj} = 125^\circ\text{C}$		27,7		$\text{m}\Omega$

Dynamic Characteristics

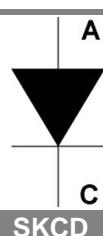
Symbol	Conditions	min.	typ.	max.	Units
t_{rr}	$T_{vj} = 25^\circ\text{C}, 20 \text{ A}, 600 \text{ V}, 300 \text{ A}/\mu\text{s}$				ns
	$T_{vj} = 125^\circ\text{C}, 20 \text{ A}, 600 \text{ V}, 300 \text{ A}/\mu\text{s}$				ns
Q_{rr}	$T_{vj} = 25^\circ\text{C}, 20 \text{ A}, 600 \text{ V}, 300 \text{ A}/\mu\text{s}$		5		μC
	$T_{vj} = 125^\circ\text{C}, 20 \text{ A}, 600 \text{ V}, 300 \text{ A}/\mu\text{s}$				μC
I_{rrm}	$T_{vj} = 25^\circ\text{C}, 20 \text{ A}, 600 \text{ V}, 300 \text{ A}/\mu\text{s}$				A
	$T_{vj} = 125^\circ\text{C}, 20 \text{ A}, 600 \text{ V}, 300 \text{ A}/\mu\text{s}$		16		A

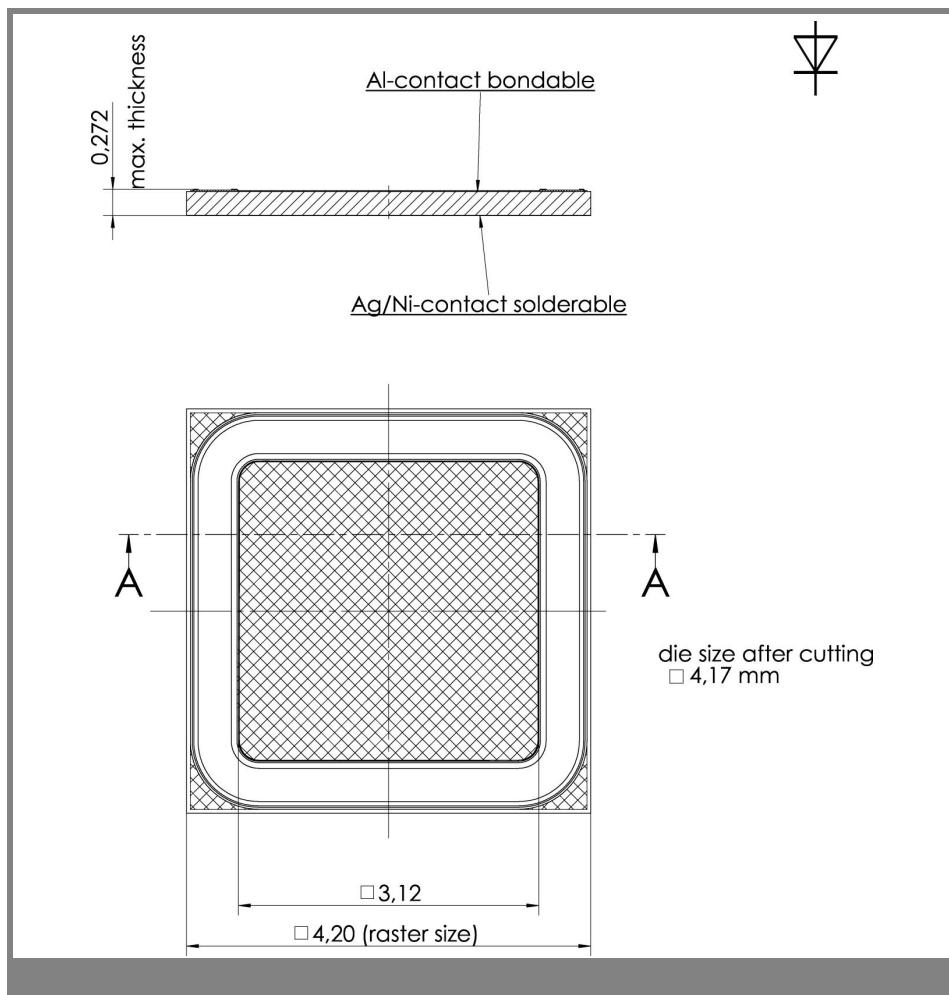
Thermal Characteristics

Symbol	Conditions	min.	typ.	max.	Units
T_{vj}		- 40		+ 150	°C
T_{stg}		- 40		+ 150	°C
T_{solder}	10 min			+ 250	°C
T_{solder}	5 min			+ 320	°C
$R_{th(j-h)}$	soldered on 0,38 mm DCB, reference point on copper heatsink close to the chip.		1,47		K / W

Mechanical Characteristics

Parameter		Units
raster size	4,2 x 4,2	mm
Area total	17,64	mm^2
Chips / wafer	578	pcs
Anode metallisation	bondable (Al)	
Cathode metallisation	solderable (Ag / Ni)	
wire bond	Al, diameter $\leq 500 \mu\text{m}$	





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